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Oxygen Sensitivity of *Lactococcus lactis* subsp. *lactis* is Strain Dependent

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The acidification activity of primary starter cultures used for cheese production is influenced by the initial oxygen content of milk. Acidification activity (i.e. ΔpH) is an important parameter for the final cheese quality. The starter culture converts oxygen present in the milk. However, some strains are more affected by the initial oxygen content than others. At high initial oxygen most strains show differences in ΔpH before and after oxygen depletion where the redox potential drops abruptly. The sensitive strains do not show this change in ΔpH at low initial oxygen.

In order to characterise oxygen response and strain diversity microarray analysis is used to identify significantly differentially expressed genes during fermentation of milk with high and low initial oxygen, respectively. The preliminary results of this study will be presented on the poster.

Study of the affected genes will provide knowledge about how the properties of the starter culture are influenced by the oxygen conditions. This knowledge can help the dairy industry to decide whether to change the initial oxygen content of the milk or to select new starter cultures with higher oxygen tolerance in order to save time on the acidification process.

Keywords: Acidification activity, Oxygen Sensitivity, Redox Potential, Gene Expression